

Health and Interprofessional Practice

Volume 1 | Issue 3

eP1035

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Clare, E. (2012). Diabetes and Hypertension: An Interprofessional Case Study. *Health and Interprofessional Practice* 1(3):eP1035.
Available at: <http://dx.doi.org/10.7772/2159-1253.1035>

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HIP is a quarterly journal published by Pacific University | ISSN 2159-1253 | commons.pacificu.edu/hip

Diabetes and Hypertension: An Interprofessional Case Study

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Abstract

This is a compilation of a case study presented by six practitioners at the *Integrative Medicine for the Underserved Conference* in Santa Clara, California, September 2012. The case is that of a diabetic patient in her mid 60s with complications of depression and hypertension. The presenters each described the approach they would take with this patient, who has little to no discretionary income.

Introduction

September 7th and 8th, 2012 marked the *Second Annual Integrative Medicine for the Underserved (IM4Us)* conference, held in Santa Clara, California. While there are other organizations with missions of integrating complimentary medicine with conventional medicine, IM4Us was founded with the focus of treating medically underserved patients, primarily uninsured or funded through Medicaid or Medicare programs, who cannot afford that which is often delivered in a more boutique setting to those with discretionary income.

This conference attracted over 180 health care providers and administrators, including medical doctors (MD), naturopathic doctors (ND), osteopathic doctors (DO), nurse practitioners (NP), acupuncturists (LAc), psychologists (PsyD), midwives (CNM), nutrition consultants (NC) and herbalists. Presentations included patient-centered topics such as nutrition education in

the community, whole-person support for the homeless, hypnosis, medical herbalism, wild-food foraging, healthy green spaces, and approaches to chronic pelvic pain and diabetes in young people. There were also many discussions of care delivery strategies and implementation of this paradigm shift in healthcare, including a keynote speech by Herb Schultz, Regional Director of Health and Human Services, on the federal framework for the transformation of healthcare.

A featured part of the IM4Us conference was the Interprofessional Case Study, in which six professionals and clinicians shared their approaches to a patient case from an integrative perspective, with focus on very limited financial resources.

The participants for this year's case study were Paul Bergner, medical herbalist, Julie Briley, ND, Wendy Kohatsu, MD, Gillian Fynn, LCSW, Connie Moreno, NC, and Bonnie Lynch LAc.

Case Description

The case is of a 65-year-old woman with diabetes, hypertension and depression. She presents because she is worried about her diabetes because a friend started dialysis. The past three years she has noticed a burning tingling pain in her feet that keeps her up at night, as well as swelling in her ankles, especially during the summer. The past year she has experienced a vague chest tightness and shortness of breath when she walks the 60 feet to her mailbox from her trailer home. She doesn't check her blood sugar at home because the strips are too expensive, but at the clinic she is usually in the mid 200s. Her exercise includes walking to her mailbox, but that is the most she can manage. She sleeps nine hours a night, but wakes 2-3 times a night feeling unsettled, and falls back to sleep after about 30 minutes to one hour later. Her medications include Metformin 1000mg PO BID and NPH insulin 30 units SQ BID, as well as Sertraline 50mg PO daily. In reality she doesn't take her Metformin because it gives her diarrhea and she sometimes forgets one of her insulin doses. She takes no herbs or supplements.

She was divorced 20 years ago and lives alone with her cat. She talks to her neighbors "once in a great while," but says she is "not a busy body," so she mostly keeps to herself. Her three adult children live out of state and are struggling themselves, so she tries not to bother them. She is retired from retail work, uninsured, and living now on very low fixed income with only \$0-40/month disposable income. She used to enjoy singing in the choir, but has had a hard time with bus fare to church for the past few years so stopped going. She does enjoy watching daytime TV and creating still life pencil drawings.

PMHx: DM, HTN, MDD (Major Depressive Disorder)

Surg Hx: none

Gyn Hx: 3 NSVD (normal spontaneous vaginal delivery), no complications

Allergies: none

ROS: neg save the above.

Labs: HbA1c 12.2%, RBS 246, microalbuminuria 90mg/24hr, Cr 1.2, otherwise normal

Vitals: Temperature 97.8°F, Respiration Rate 18bpm, Heart Rate 80bpm, Blood Pressure 150/72mmHg, BMI 32

Physical Exam:

Gen: obese, quiet female, NAD

HEENT: normal

Lungs: CTAB, good breath sounds

Heart: RRR, no m/g/r

Abdomen: soft, obese, nontender, no masses, rebound/guarding/rigidity, no CVAT

Extremities: trace pitting edema B to ankles, 2+ pulses BLE

Psych: reticent, soft-spoken, depressed affect, fluent speech, no suicidal intent

Case Discussion

Paul Bergner

*Director, North American Institute of Medical Herbalism
Clinic Director, Evergreen Center (sliding scale clinic),
Boulder, CO*

Mr. Bergner started the discussion by stressing the importance of diet in the role of controlling blood glucose, and that herbal medicine would not alone be able to control blood sugar. He recommended a ketogenic diet such as the Atkins diet, which is high in protein and low in carbohydrates. A change of timing and spacing

the macronutrients in her diet could make a significant change in blood sugars without additional cost. Breakfast and lunch could be modified to include higher protein levels, with the idea of extending low blood sugars, which normally accompany sleep, later into the day.

Mr. Bergner added that herbal medicine can help with sensitizing cells to insulin, and suggested including up to a teaspoon of cinnamon into her daily diet, as well as increasing consumption of nopales (cactus) if that is part of her culture's cuisine. He also described substances in coffee as insulin-sensitizing agents, in addition to it containing several antioxidants, making cof-

fee a safe, and even recommended therapy, up to six cups per day.

Julie Briley, ND

Oswego Progressive Medicine and Grain Integrative Health
Project Physician, Ending Childhood Obesity (ECO),
National College Natural Medicine, Portland

Diet and lifestyle are heavily affecting this patient's chronic diseases, and Dr. Briley began by addressing the foundations of health, which would require dietary interventions, lifestyle recommendations, and empowering the patient to reconnect with her body and take self-responsibility for her health. A good tool for her would be to keep a diet diary, including when, what and the amounts she eats, her frequency of bowel movements, and symptom reporting. Dr. Briley would prioritize having the patient take her blood glucose readings in the morning, before bed, and 1 hour after each meal. This would provide immediate feedback to the patient about the effects of her diet choices on her blood sugar. Dr. Briley would help the patient shift toward a whole foods, primarily plant-based diet focused on a healthy balance of protein, healthy fats, and complex carbohydrates. The ECO Projects workshops would provide her with 12 weeks of free nutrition and hands-on cooking classes where she would enjoy a healthy meal and hopefully it would provide a sense of community for her.

Other recommended lifestyle habits would be to increase the patient's water consumption (to half her body weight in ounces), practice stress-relieving breathing exercises, and healthy sleep habits (sleep in a completely dark room, free of electronic and artificial light which can alter the production of melatonin). Dr. Briley would follow up on the patient's chest tightness and shortness of breath with a cardiac workup, including a stress-EKG before recommending any increase in movement. A good choice for her would be to walk and gradually increase her time, as there is evidence that 30 minutes of daily walking can be an effective treatment for depression. Most of these interventions are free to the patient and can effect positive changes in her health, specifically her blood pressure and glucose/insulin interaction.

At-home hydrotherapy, which is also free to the patient, would help stimulate the patient's internal healing mechanisms by increasing blood circulation, stimulat-

ing the immune system and calming the nervous system. Due to the patient's neuropathy, Dr. Briley would not recommend hydrotherapy treatment to the feet; however there are many alternate at-home treatments.

After establishing a healthy diet, lifestyle and stimulating self-healing, the next level of intervention would be to support healthy tissue functioning and repair using specific nutrients and herbs. There are a variety of natural treatment options and not all of the following would be used at once. This patient will require long-term care and based on the patient's symptoms, priorities, and financial limitations at each visit, one, some, or none of the following may actually be used: alpha-lipoic acid (a potent antioxidant and anti-inflammatory) for diabetic neuropathy; B-vitamins for healthy metabolism, neurotransmitter function, and peripheral neuropathies; Omega-3 fish oils as anti-inflammatories and support for healthy brain functioning; vitamin D as an important immune system regulator; and herbal medicines such as cinnamon, fenugreek, gymnema and/or berberine. In addition, specific nutrients that play a role in insulin sensitivity are chromium, magnesium, zinc and vanadium.

Wendy Kohatsu, MD

*Director, Integrative Medicine Fellowship, Santa Rosa
Family Medicine Residency & Assistant Clinical Professor,
Family Medicine, University of California, San Francisco
Senior Graduate Fellow, Integrative Medicine, University of
Arizona*

Dr. Kohatsu describes her approach to this patient, which is probably one of several in her day, as she often sees over 10 patients in a half-day shift. Her attitude is that work is love made manifest, so before she enters a treatment room, she asks herself, how do I manifest my work today? This provides her with grounding and sets her intention for the visit. She first wants to explore what will motivate this patient who is starting to exhibit signs of end-organ damage.

As a diagnostician, Dr. Kohatsu is concerned about the patient's report of chest pain and shortness of breath, and would order an ECG and labwork to include lipids. At Dr. Kohatsu's clinic, if the patient is uninsured, she is eligible to receive a comprehensive cardiology lab panel to include ApoE and LDL subtypes. For her diet, she would refer this patient to a food stamp program, as she can use those dollars for healthier food at a local farm-

ers market. She would also help the patient get enrolled in their local *Fruit and Veggie Prescription* program.

The patient is on Metformin, and although she may not take it with regularity, it may be causing vitamin B12 deficiency, a common drug-nutrient interaction. Since vitamin B12 is important in effective nervous system function, Dr. Kohatsu would prescribe her vitamin B12 to help prevent exacerbation of her neuropathy. She would also look into switching to a longer acting, once-daily form of insulin to aid in compliance and consistency.

Since the patient is fairly isolated socially, Dr. Kohatsu would invite her to join a group visit with other diabetics. Finally, she would refer the patient to watch *Diabetes: the Musical*, an online resource, as this patient loves music and can have fun learning while she empowers herself to learn about diabetes.

Connie Moreno, NC

Nutrition and Health Educator

As a non-billable provider, Ms. Moreno has the privilege to spend more time with patients than do the doctors. She has the time to delve into issues of stress and sleep, and emotional health. Her approach is one with a holistic view. This patient, who is socially isolated, should be assigned to a diabetes support group, which would provide peer support and allow the patient to learn from others' experiences of living with diabetes. Since the patient has a limited budget, food stamps and enrollment in the food bank would be a worthwhile step. Her clinic also provides leftover produce donated from local sources twice per week.

Ms. Moreno suggests a protein-rich breakfast. Her philosophy when working with patients to make diet changes is to add before taking away. The added protein will increase her satiety and balance blood glucose. She advises to begin slowly adding, protein sources such as eggs, yogurt and cottage cheese.

To help the patient increase her daily movement, Ms. Moreno suggests a free television series called "Sit and be Fit," which demonstrates movements one can do while seated on a couch or chair (<http://www.sitandbefit.org>).

Ms. Moreno also advises that the patient find a way to

get her blood glucose tested, as she is taking prescription insulin, which poses the risk of insulin-induced hypoglycemia if not more regularly monitored.

Gillian Fynn, LCSW

Behavioral Health

This mental health provider reflected that it was very interesting to work in a primary health care clinic, as it requires her to reframe how she thinks. In this integrated practice, she is often summoned by a medical assistant to briefly meet a patient at the end of a medical visit, as a way to reduce the stigma of getting therapy. Then the patient might be more likely to come in for a full appointment.

Among other reasons Ms. Fynn might be called for a consult, all diabetics with an A1c level of ≥ 9 are required to be screened during medical visits for mental health issues. Given this patient's social and medical profile, Ms. Fynn anticipates that she might have a history of psychological trauma. Her social isolation is likely a self-protective strategy.

As this is a complicated case, there is no quick fix, but one strategy would be to enhance the patient's sense of self. The clinic may be this patient's first place where her social isolation is broken. Therefore it is imperative that she is received by friendly staff, from the front desk to the MA to the doctor to the LCSW. If everyone helps her to feel validated, this is the first step for this patient to take herself seriously, and be willing to have the "change talk" that she might have with a mental health worker. Depending on the nature and severity of psychological trauma that this patient may have experienced, Ms. Fynn expects working with her might require a fairly lengthy trust building process.

In the integrative office where Ms. Fynn practices, the practitioners often share patient information between team members, such as the medical doctor, the nurse practitioner, and the mental health worker, so that they can collaborate to best help the patient. This is outlined in the informed consent signed by the patient.

Bonnie Lynch, LAc

Acupuncturist

Ms. Lynch is part of an integrative primary care team. She supervises acupuncture students one afternoon

for four hours. Her approach to patients is to consider what she can do for patients in six acupuncture visits to maximize their health. She views her role as a stepping stone to another service, as an activity along the way.

Ms. Lynch would likely focus the six acupuncture visits to help improve the patient's neuropathy symptoms and her sleep, both of which are known to respond well with this modality. She would first assess how comfortable the patient is with the treatment team and with the idea of acupuncture, and whether she has ever experienced it. As acupuncture can be very relaxing, the hope is that after treatment she would be more relaxed and open to receive more care.

As an acupuncturist, Ms. Lynch uses the Chinese medical system, and would therefore seek some additional diagnostic information, specifically pulse and tongue descriptions. She teaches her students to gather pulse and tongue readings first and then use that data to guide the medical interview. For example if the tongue is pale, there may be functional anemia, so she might ask about fatigue.

If the patient has more resources, she would recommend some Chinese herbs and use moxibustion techniques to treat this patient on a more long-term basis. She would also advocate that the patient spend some money to buy better quality food and glucose testing strips.

Author's Commentary

This patient meets criteria for metabolic syndrome (dysglycemia, hypertension, central obesity/BMI >30), so I suspect she may have or will develop the other components, dyslipidemia and non-alcoholic fatty liver disease. Therefore any therapeutic approach should take this into consideration.

I agree with Dr. Briley's recommendation of a plant-based diet. Congruent with Ms. Moreno's "add before you take away" approach, I would advocate that this patient eat more vegetables (fresh and steamed), and a moderate amount of fresh fruit. The vitamins, minerals, antioxidants and beneficial phytochemicals (such as proanthocyanidins) can improve health in many ways, with specific substances improving macro- and microcirculation, nervous and renal system functioning, to name a few examples. With a few exceptions,

animal products tend to be devoid of micronutrients, but these can also be found in plant sources.

Increasing dietary fiber, which is only possible if she eats more whole plant foods, is key for a patient with metabolic syndrome for reasons that include meal satisfaction due to increased satiety, improved cardiovascular profile, decreased insulin, triglyceride, cholesterol, and last but not least, stabilized plasma glucose concentrations (as well as lowered A1c levels) (Giacco, Clemente, & Riccardi, 2002). It seems that adding protein as a blood-balancing strategy is a common recommendation for diabetics. Although she does not require dialysis at this time, this patient is exhibiting laboratory signs of nephropathy: microalbuminuria and elevated creatinine. Diabetics with marked nephropathy have long been recommended to restrict protein intake, as higher protein diets are taxing to already compromised kidneys. Moreover, moderate dietary protein restriction is an acceptable and effective way of delaying functional renal deterioration (Rosman et al., 1984). Therefore I would not likely recommend an increase in dietary protein for this patient. The protein she does eat would be best obtained from plant sources, such as whole grains, legumes, nuts, seeds, leafy greens and sprouts, which would naturally include the additional protective benefit of fiber and micronutrients.

A healthy whole-foods, plant-based diet can be both healing and affordable, and thus empowering for this patient, as she would probably lose weight and experience positive subjective and objective changes in her health. A community-based nutrition and cooking outreach program, like the ECO project that Dr. Briley leads in Portland, would be very helpful in implementing these dietary recommendations.

I also agree with the compassionate and validating approaches described by Dr. Kohatsu and Ms. Fynn, as well as the medical concern of insulin monitoring mentioned by both Ms. Moreno and Dr. Kohatsu. I think Ms. Lynch's approach to the patient's neuropathy is sound, especially because improvement in nerve sensation will help prevent other problems common in diabetics. I might also suggest Chinese dietary strategies, such as soups with black beans and sea vegetables, that would gently tonify her kidneys.

This conference, and specifically this interprofessional case review, was very exciting to witness. The respect-

ful collaboration among disciplines and professions was remarkable. Generosity abounded with volunteers who donated time and effort to ensure the success of this event. Most notably, participants expressed gratitude and relief that there were an increasing number of kindred spirits who want to (and do) implement integrative medicine in a way that reaches the neediest of our population. Moreover, they are eager to create and share cooperative strategies, even if they have to work on the “edges” of the standard framework of conventional medicine.

About the Conference

Integrative Medicine for the Underserved (IM4Us) is a national organization born of a small gathering at the Society for the Teachers of Family Medicine in 2009. IM4Us comprises providers from around the United States and Canada, all of whom provide Integrative and Holistic care in an underserved setting. The organization is currently collecting integrative patient education and teaching materials geared toward low income and low literacy patients in multiple languages. Please refer to the ever-evolving website (<http://www.im4us.org>) to view or download resources.

Editor's Note

Submissions to the Case-Based Learning section are usually peer-reviewed. However, given the nature of this submission, which is a report of a conference session, only an editorial review was performed. Permission was granted from conference organizers to publish an account of this session.

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